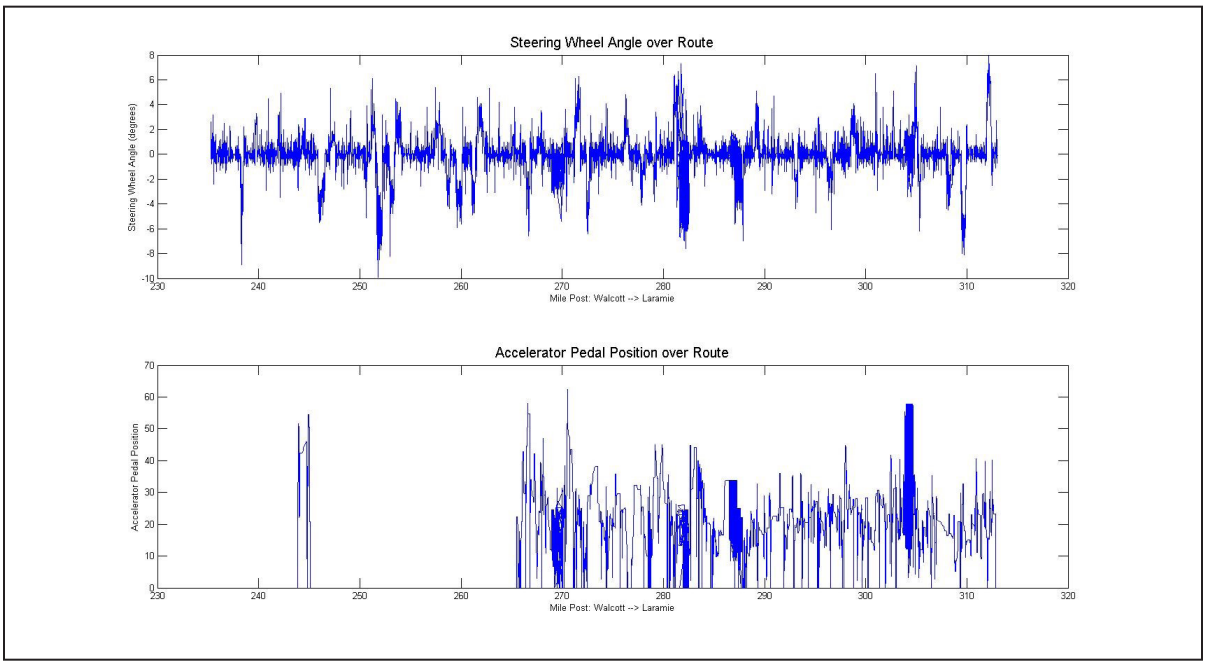
MOUNTAIN-PLAINS CONSORTIUM

PROJECT BRIEF | December 2015

Connected Vehicle Weather Data for Operation of Rural Variable Speed Limit Corridors



the **ISSUE**

This research examined the feasibility of using connected vehicle data to evaluate road conditions. A long-term goal of this research is to assist the creation of a real-time connected vehicle road weather condition reporting system that will increase the reliability, efficiency, and safety of the transportation system.

the **RESEARCH**

The research objectives are listed below:

1. Determine the most effective technology for collecting connected vehicle data from vehicles' CAN-Bus;
2. Investigate the reliability and practicality of ascertaining segmented road condition data from NCAR's Pikalert system;
3. Determine whether connected vehicle CAN-Bus data are suitable for supporting the data requirements of VSL decision-making algorithms; and
4. Make recommendations and identify future research needs regarding the prospective use of connected vehicle data in rural roadway corridors subject to significant weather events.

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A University Transportation Center sponsored by the U.S. Department of Transportation serving the Mountain-Plains Region. Consortium members:

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South Dakota State University
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University of Utah
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Project Title

Connected Vehicle Weather Data for Operation of Rural Variable Speed Limit Corridors

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Sponsors | Partners

Wyoming DOT

National Center for Atmospheric Research

USDOT, Research and Innovative Technology Administration

the **FINDINGS**

Without standardized vehicle data formats from all vehicles, off-the-shelf CAN-Bus technology is not adequate for collecting a complete and robust vehicle data set. Federal requirements are addressing this issue; however, the circumstances make proactive and advanced research difficult. Even with an adequate data set, this research indicates there is some concern with translating vehicle CAN-Bus data into mobile weather information. The practicality and usability of NCAR's Pikalert system needs to be evaluated further to fully comprehend the potential for segmented road weather condition data. The current system appears to be very successful in producing and distributing road condition advisories and warnings; however, success in producing raw segmented road condition data is unclear. Further, the next steps should be to evaluate complete vehicle data sets during adverse weather events and evaluate the data collection process and Pikalert system to a greater extent.

the **IMPACT**

This research represents crucial first steps in identifying the issues associated with integrating connected vehicle technology into roadway operational strategies. While connected vehicle technology holds great promise for improving safety and efficiency of the transportation systems, significant challenges will need to be overcome.

For more information on this project, download the entire report at http://www.ugpti.org/resources/reports/details.php?id=835

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7938 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.

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